

1600

RAW SEQUENCE LISTING

DATE: 10/22/2001

PATENT APPLICATION: US/09/545,199D

TIME: 16:53:01

Input Set : A:\6227.txt

Output Set: N:\CRF3\10222001\I545199D.raw

Does Not Comply
Corrected Diskette Needed

3 <110> APPLICANT: Lowery E., David
 4 Fuller E., Troy
 5 Kennedy J., Michael
 7 <120> TITLE OF INVENTION: Anti-Bacterial Vaccine Compositions
 9 <130> FILE REFERENCE: 28341/6227.1
 11 <140> CURRENT APPLICATION NUMBER: 09/545,199D
 12 <141> CURRENT FILING DATE: 2000-04-06
 14 <150> PRIOR APPLICATION NUMBER: 60/153,453
 15 <151> PRIOR FILING DATE: 1999-09-10
 17 <150> PRIOR APPLICATION NUMBER: 60/128,689
 18 <151> PRIOR FILING DATE: 1999-04-09
 20 <160> NUMBER OF SEQ ID NOS: 169
 22 <170> SOFTWARE: PatentIn Ver. 2.0

ERRORED SEQUENCES

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 1994 <212> TYPE: PRT
 1995 <213> ORGANISM: Pasteurella multocida
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 2002 20 25 30
 2004 Glu Arg Ser Val Tyr Asn Ile Gly Asp Ile Tyr Ala Ser Lys Lys Leu
 2005 35 40 45
 2007 Thr Val His Thr His Asn Leu Ile Asn Asp Val Arg Leu Ser Gly Asn
 2008 50 55 60
 2010 Val Ser Tyr Lys Pro Ile Gly Ser Ser Arg Asp Tyr Asp Ile Ser Arg
 2011 65 70 75 80
 2013 Val Ala Val His Gly Trp His Asn Asn Val Tyr Lys Leu Asn Leu Asn
 2014 85 90 95
 2016 Leu Gln Glu Gln Asp Lys Thr Asp Ile Lys Val Val Lys Met Gly Ala
 2017 100 105 110
 2019 Ile Arg Ser Asp Gly Asp Phe Asp Phe Lys Gly Ile Lys Ala Thr Ser
 2020 115 120 125
 2022 Ser Glu Ser Lys Pro Gln Leu Ile Asn His Gly Leu Ile Asn Val Lys
 2023 130 135 140
 2026 Gly Thr Phe Asn Ala Glu Ala Asp Gln Val Val Asn Gln Met Lys Ala
 2027 145 150 155 160
 2029 Phe Asn Gln Asn Ala Leu Ala Ser Val Phe Lys Asn Pro Ala Lys Ile
 2030 165 170 175
 2032 Thr Met Tyr Tyr Gln Pro Leu Thr Arg Tyr Ile Trp Thr Pro Leu Ser
 2033 180 185 190
 2035 Gly Asn Ala Ser Arg Glu Phe Asn Asn Leu Glu Ser Phe Leu Asp Ala

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2036	195	200	205
2038	Leu Phe Gly Ser Thr Thr Ile Leu Lys Ser Ser Phe Tyr Ser Thr Glu		
2039	210	215	220
2041	Asn Phe Ser Ala Tyr Gln Leu Leu Ser His Ile Gln His Ser Pro Met		
2042	225	230	235
2044	Tyr Gln Lys Ala Met Ala Gln Val Phe Gly Ala Glu Trp His Ser Lys		
2045	245	250	255
2047	Ser Tyr Asp Glu Met Arg Asn Lys Trp Lys Ser Phe Lys Glu Asn Pro		
2048	260	265	270
2050	Thr Asp Phe Ile Tyr Tyr Pro Ser Glu Lys Ala Lys Ile Leu Ala Gly		
2051	275	280	285
2053	Lys Leu Glu Gly Lys Leu Thr Thr Leu Gln Asn Gly Glu Tyr Ala Glu		
2054	290	295	300
2056	Arg Gly Lys Phe Asp Glu Ser Ile Gln Ile Gly Lys His Gln Leu Ser		
2057	305	310	315
2059	Leu Pro Ser Val Glu Leu Lys Ala Glu Phe Ser Asp Lys Glu Arg Leu		
2060	325	330	335
2062	Glu Glu Asp Gly Val Asp Leu Ser Ser Ile Ala Glu Leu Leu Glu Met		
2063	340	345	350
2065	Pro Asn Leu Phe Ile Asp Asn Ser Ile Gln Leu Glu Lys Lys Lys Leu		
2066	355	360	365
2068	Ser Pro Ile Glu Asp Leu Asp Glu Glu Pro Arg Lys Asn Leu Asp Ile		
2069	370	375	380
2071	Glu Glu Ser His Ser Asn Ser Ser Asp Asp Val Leu Ser Met Asn Asp		
2072	385	390	395
2074	Asp Glu Ser Asp Thr Asp Asp Ser Lys Trp Ser Met Gly Asn Asp Glu		
2075	405	410	415
2077	Lys Glu Met Pro Asp Asp Lys Leu Gly Ile Ser Arg Asp Asp Arg Gly		
2078	420	425	430
2080	Asn Lys Pro Pro Arg Thr Asp Pro Thr Val Asp Tyr Leu Asn Pro Asp		
2081	435	440	445
2083	Glu Phe Phe Glu Asn Gly Tyr Leu Leu Asn Glu Leu Leu Gln Glu Leu		
2084	450	455	460
2087	Gly Glu Glu Pro Leu Leu Lys Glu Gly Glu Asp His Phe Lys Arg Ser		
2088	465	470	475
2090	Thr Asn Leu Val Arg Leu Gly Glu Arg Asp Arg Gln Asn Arg Glu Lys		
2091	485	490	495
2093	Arg Glu Lys Glu Gly Tyr Phe Asp Leu Pro Gly Thr Leu Asp Met Lys		
2094	500	505	510
2096	Leu Gln Glu Leu Phe Glu Lys Arg Lys Gln Lys His Glu Ala Glu Gln		
2097	515	520	525
2099	Lys Ala Arg Ile Glu Lys Ala Leu Leu Gln Lys Ser Glu Gln Gln Glu		
2100	530	535	540
2102	Lys Arg Val Glu Glu Arg Lys Gln Glu Glu Lys Arg Gln Ala Gln Asp		
2103	545	550	555
2105	Lys Ile Ala Lys Gln Val Glu Ile Ala Lys Glu Met Gln Arg Val Glu		
2106	565	570	575
2108	Glu Ile Arg Gln Arg Glu Lys Gln Leu Ala Ile Gln Leu Gln Glu Glu		
2109	580	585	590

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2111 Glu Lys Lys Gln Gln Glu Glu Lys His Leu Ser Glu Glu Lys Lys Gln
2112          595                      600                      605
2114 Ala Glu Gln Lys Gln Lys Ala Glu Glu Lys Val Ala Gln Glu Arg Leu
2115          610                      615                      620
2117 Asp Ile Glu Gln Gln Lys Ala Tyr Glu Glu Met Ala Lys Arg Glu Ala
2118 625                      630                      635                      640
2120 Glu Ala Ser Lys Asn Val Leu Leu Lys Ala Ile Asp Glu Glu Arg Pro
2121          645                      650                      655
2123 Lys Val Glu Thr Asp Pro Leu Phe Arg Thr Lys Leu Lys Tyr Ile Asn
2124          660                      665                      670
2126 Gln Asp Asp Tyr Ala Gly Ala Asn Tyr Phe Phe Asn Lys Val Gly Leu
2127          675                      680                      685
2129 Asn Thr Lys Gly His Gln Lys Val Asn Val Leu Gly Asp Asn Tyr Phe
2130          690                      695                      700
2132 Asp His Gln Val Ile Thr Arg Ser Ile Glu Lys Lys Val Asp Asn His
2133 705                      710                      715                      720
2135 Leu Asn Gln Lys Tyr Asn Leu Ser Asp Val Glu Leu Val Lys Gln Leu
2136          725                      730                      735
2138 Met Asp Asn Ser Thr Thr Gln Ala Gln Glu Leu Asp Leu Lys Leu Gly
2139          740                      745                      750
2141 Ala Ala Leu Thr Lys Glu Gln Gln Ala Asn Leu Thr Gln Asp Ile Val
2142          755                      760                      765
2144 Trp Tyr Val Lys Thr Lys Val Lys Gly Lys Asp Val Phe Val Pro Lys
2145          770                      775                      780
2148 Val Tyr Phe Ala Ser Glu Thr Leu Val Glu Ala Gln Lys Leu Gln Gly
2149 785                      790                      795                      800
2151 Leu Gly Thr Gly Thr Ile Arg Val Gly Glu Ala Lys Ile Lys Ala Lys
2152          805                      810                      815
2154 Asp Val Val Asn Thr Gly Thr Leu Ala Gly Arg Lys Leu Asn Val Glu
2155          820                      825                      830
2157 Ala Ser Asn Lys Ile Lys Asn Gln Gly Ser Ile Leu Ser Thr Gln Glu
2158          835                      840                      845
2160 Thr Arg Leu Val Gly Arg Lys Gly Ile Glu Asn Val Ser Arg Ser Phe
2161          850                      855                      860
2163 Ala Asn Asp Glu Leu Gly Val Thr Ala Gln Arg Ser Glu Ile Lys Thr
2164 865                      870                      875                      880
2166 Glu Gly His Leu His Leu Glu Thr Asp Lys Asp Ser Thr Ile Asp Val
2167          885                      890                      895
2169 Gln Ala Ser Asp Ile Lys Ala Lys Thr Ser Phe Val Lys Thr Gly Asp
2170          900                      905                      910
2172 Val Asn Leu Lys Asn Thr Tyr Asn Thr Lys His Ala Tyr Arg Glu Lys
2173          915                      920                      925
2175 Phe Ser Pro Ser Ala Leu Gln Val Ala Glu Leu Asp Val Ala Gly Leu
2176          930                      935                      940
2178 Lys Val Pro Leu Leu Gly Val Ser Ser Pro Ser Ser Tyr Ser Glu His
2179 945                      950                      955                      960
2181 Thr Ser Glu Ala Thr Ser Glu Gly Ser Ile Phe Glu Val Gly His Leu
2182          965                      970                      975
2184 His Leu Ala Val Asp Arg Asp Val Asn Gln Ala Gly Ser Lys Ile Lys

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2185          980          985          990
2187 Ala Lys Tyr Thr Thr Gly Val Val Lys Gly Asn Phe Asn Thr Glu Ala
2188          995          1000          1005
2190 Gly Lys Asn Ile Lys His Val Glu Lys Glu Glu Tyr Ser Ser Gln Leu
2191          1010          1015          1020
2193 Phe Ala Ser Ala His Ala Ser Gly Gly Gly Thr Ser Val Arg Tyr Asp
2194 1025          1030          1035          1040
2196 Tyr Asn Ser Gln Asp Gly Gly Asn Ala Ser Val Gly Val Pro Thr Asn
2197          1045          1050          1055
2199 His Thr Gly Val Gly Ala Glu Ala Gly Met Ser Phe Thr His Thr Lys
2200          1060          1065          1070
2202 Asp Lys Glu Thr Leu Leu Thr His Thr Asn Ser Glu Leu Gln Val Lys
2203          1075          1080          1085
2205 His Gly Lys Leu His Val Leu Gly Tyr Ala Asp Ile Gly Gly Val Asp
2206          1090          1095          1100
2209 Ile Asn Thr Lys Leu Pro Glu Asp Ala Gln Ser Lys Ala Gln Lys Glu
2210 1105          1110          1115          1120
2212 Ile Ala Ala Ser Lys Pro Glu Lys Thr Glu Gln Ser Ala Gln Asp Val
2213          1125          1130          1135
2215 Ala Gln Ala Gln Ser Asn Ala Asn Lys Asp Lys Glu Asn Lys Ala Pro
2216          1140          1145          1150
2218 Glu Ile Lys Glu Leu Ser Glu Ala Glu Ile Ala Asp Leu Met Ser Glu
2219          1155          1160          1165
2221 Lys Ser Lys Ala Tyr Phe Asp Asp Phe Ala Glu Gln Ala Lys Lys Ala
2222          1170          1175          1180
2224 Pro Glu Asn Asn Arg Phe Glu Leu Ser Ala Lys Glu Ile Lys Ser Ser
2225 1185          1190          1195          1200
2227 Lys Gln Lys Asp Gln Tyr Asp His Glu Ser Glu Arg Thr Thr Phe Lys
2228          1205          1210          1215
2231 Val Gly Pro Glu Ala Glu Ala His Ser Ala Val Ala Asp Met Val Ser
2232          1220          1225          1230
2234 His Leu Val Lys Glu Tyr Arg Asp Ala Gln Asn Gly Thr Lys Gln Asp
2235          1235          1240          1245
2237 Gly Thr Val Ala Leu Gln His Ala Ser Asp Val Leu Asn Ile Val Thr
2238          1250          1255          1260
2240 Gly Asp Leu Ala Gly Ser Ser Ala Lys Leu Ser Val Glu Arg Thr His
2241 1265          1270          1275          1280
2243 Glu Thr Lys Arg Thr Thr Glu Thr Gly Asp Ile Val Thr Lys Ile Gly
2244          1285          1290          1295
2246 Gly Asn Val Thr Leu Ser Ala Arg Ser Gly Ser Val Asn Leu Lys Asn
2247          1300          1305          1310
2249 Val Gln Ser Asp Glu Gln Ala Asn Leu Thr Leu Arg Ala Lys Glu Asp
2250          1315          1320          1325
2252 Val Asn Val Leu Ser Gly Glu Lys Thr Arg Glu Thr Thr Glu Thr Val
2253          1330          1335          1340
2255 Ser Arg Gln Lys Leu Ser His Gly Val Asn Ala Gly Cys Ser Met Met
2256 1345          1350          1355          1360
2258 Ser Gly Ala Cys Thr Ala Gly Val Ser Thr Ser Leu Glu Gly Asn Glu
2259          1365          1370          1375

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2261 Ser Tyr Thr Ser Glu Arg Glu Thr Ala Gln Asn Asn Ser Phe Leu Lys
2262                1380                1385                1390
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2265                1395                1400                1405
2267 Ser Asn Ile Asp Ala Asp Lys Leu Asp Leu His Val Lys Gly Lys Thr
E--> 2268  <1410                1415                1420
2270 Asn Val Val Ser Lys Gln Asp Thr Leu Gln Lys Val Thr His Gly Val
2271 1425                1430                1435                1440
2273 Asp Tyr Asn Leu Ser Ala Gly Val Ala Leu Ser Ser Ala Thr Ile Ala
2274                1445                1450                1455
2276 Thr Pro Thr Gly Asn Val Gly Phe Gly Tyr Thr Asn Glu Thr Glu Ser
2277                1460                1465                1470
2279 Lys Arg Thr Val Asn Gln Gln Ala Gly Ile Lys Ala Asn Lys Ile Thr
2280                1475                1480                1485
2282 Gly Gln Thr His Asp Leu Asn Leu Glu Gly Gly Tyr Leu Val Ser Asn
2283 1490                1495                1500
2285 Asp Lys Asp Asn Gln Leu Lys Val Thr Gly Asp Val Thr Thr Lys Ala
2286 1505                1510                1515                1520
2288 Leu His Asp Gln His Asp Lys Asp Gly Gly Thr Phe Gly Leu Ser Val
2289                1525                1530                1535
2291 Gly Ile Ser Glu Arg Gly Thr Thr Ala Phe Asn Val Arg Gly Gly Arg
2292                1540                1545                1550
2294 Ala Glu Gln Lys His Tyr Asn Ala Thr Gln Lys Ser Thr Leu Ser Gly
2295                1555                1560                1565
2297 Val Asp Thr Ser Gln Ala Asn Val Ser Gly Gln Val Asn Thr Asp Leu
2298 1570                1575                1580
2300 Thr Lys Ala Lys Ala Val Thr Arg Asp Asp Thr Tyr Ala Ser Thr Gln
2301 1585                1590                1595                1600
2303 Phe Ser Phe Glu Val Ala Asp Ile Val Glu Leu Gly Gln Arg Ala Lys
2304                1605                1610                1615
2306 Asn Lys Leu Ser Ala Pro Asn Asn Asp Thr Asp Met Ala Ser Gly Ser
2307                1620                1625                1630
2309 Thr Leu Arg Ser Arg Ser Thr Thr Glu Glu Ala Asp Val Pro Thr Thr
2310 1635                1640                1645
2312 Arg Ser Arg Val Thr Asp Glu Ala Asp Ser Val Ser Val Lys Asn Pro
2313 1650                1655                1660
2315 Ile Tyr Glu Ser Ala Asp Ala Val Val Pro Thr Pro Arg Ser Arg Asn
2316 1665                1670                1675                1680
2318 Val Asp Ser Thr Asp Leu Val Asp Asn Pro Leu Tyr Ala Ser Ala Thr
2319                1685                1690                1695
2321 Thr Lys Ala Asn Ile His Asp Tyr Glu Glu Ile Pro Ala Val Tyr Ser
2322                1700                1705                1710
2324 Lys Val Gly Asp Asn Asn Ala Asp Leu Val Arg His Lys Thr Ala Thr
2325                1715                1720                1725
2327 Ser Asp Glu His Leu Tyr Ala Glu Ile Asn Glu Pro Thr Tyr Ser Arg
2328 1730                1735                1740
2331 Val Gly Asp Lys Asn Ala Asp Met Arg Arg His Asn Ala Ala Gly Thr
2332 1745                1750                1755                1760
2334 Thr Asp Tyr Ala Asp Val Val Gln Ala His Thr Arg Lys Ala Asp Asp

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2335          1765          1770          1775
2337 Pro Leu Pro Ala Leu Pro Asn Gln Gly Lys Ala Arg Thr Val Asn Asp
2338          1780          1785          1790
2340 Gly Ser Glu His Ile Tyr Thr Asp Ile Ser Asp Val Gly Thr Gln Thr
2341          1795          1800          1805
2343 Lys Ala Ile Asp Ser Thr Tyr Ala Thr Val Gly Met Pro Lys Ala Asn
2344          1810          1815          1820
2346 Ala Val Asn Leu Ile Gly Gln Asn Gly Leu Gly Ser Ile Tyr His Ser
2347 1825          1830          1835          1840
2349 Pro Asp Ser Ala Tyr Lys Thr Trp Gln Leu Leu Asp Gln Phe Ala Asn
2350          1845          1850          1855
2352 Lys Gly Gly Asp Ala Val Phe Leu Arg Pro Ala Thr Glu Met Lys Cys
2353          1860          1865          1870
2356 Ala Gly Ala Pro Leu Lys Tyr Thr Phe Ile Val Arg Asp Tyr Leu Leu
2357          1875          1880          1885
2359 Arg Arg His Thr Leu Asp Lys Ser Arg Leu Phe Tyr Asn Ala His Asn
2360          1890          1895          1900
2362 Lys Thr Leu Phe Ser Val Pro Ile Val Asp Ala Lys Val Lys Met Leu
2363 1905          1910          1915          1920
2365 Phe Ala Glu Lys Asn Ile Gln Val Asn Tyr Asp Arg Ser Leu Thr Ala
2366          1925          1930          1935
2368 Ile Asp Leu Ser Lys Arg Ile Ala Thr Phe Asn Ser Pro Glu Gly Val
2369          1940          1945          1950
2371 Val Glu Val Pro Tyr Asp Phe Ile Asn Val Val Pro Pro Met Arg Ala
2372          1955          1960          1965
2374 Pro Asp Ala Val Arg Gln Ser Ala Leu Ala Trp Gln Glu Gly Lys Trp
2375          1970          1975          1980
2377 Ala Asn Asp Gly Trp Val Glu Val Glu Lys His Thr Leu Arg His Arg
2378 1985          1990          1995          2000
2380 Arg Tyr Ala Asn Val Phe Ala Val Gly Asp Val Ala Gly Val Pro Lys
2381          2005          2010          2015
2383 Gly Lys Thr Ala Ala Ser Val Lys Trp Gln Val Pro Val Ala Val Ala
2384          2020          2025          2030
2386 His Leu Leu Ala Glu Leu Glu Gly Lys Pro Cys Asp Glu Ile Tyr Asn
2387          2035          2040          2045
2389 Gly Tyr Thr Ser Cys Pro Leu Ile Thr Gln Leu Gly Lys Gly Met Leu
2390          2050          2055          2060
2392 Val Glu Phe Asp Tyr Asn Asn His Leu Thr Pro Ser Phe Pro Gly Val
2393 2065          2070          2075          2080
2395 Ile Ala Pro Leu Glu Glu Leu Trp Ala Thr Trp Ala Ile Lys Thr Leu
2396          2085          2090          2095
2398 Gly Leu Lys Pro Thr Tyr Leu Gly Met Leu Arg Gly Leu Ala
2399          2100          2105          2110

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VERIFICATION SUMMARY

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Input Set : A:\6227.txt

Output Set: N:\CRF3\10222001\I545199D.raw

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